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The Coastal Oceanographic Processes (CoOP) program was formulated to promote interdisciplinary research in the coastal ocean. The goal of CoOP is to obtain a new level of quantitative understanding of the transports, transformations and fates of biogeochemically important matter over the continental margins. During the grant period we developed a document on data standards and archiving; prepared an implementation plan for a joint CoOP/GLOBEC California Current study; and, released an Announcement of Opportunity for a Great Lakes Process study.

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RESULTS FROM PRIOR SUPPORT

The CoOP program continued to support and plan interdisciplinary research in the coastal ocean. During the current 3 year grant period, the CoOP Scientific Steering Committee (SSC) developed a Data Policy/Data Management Plan which is posted on our homepage and is sent to all CoOP Principal Investigators. CoOP held an open workshop (October 6-8, 1994) to discuss a potential Great Lakes process study. The results of this workshop as well as the CoOP Great Lakes Science Plan were published (Klump et al. 1995). Based on this CoOP Great Lakes Science Plan, a joint Announcement of Opportunity from NSF-CoOP and NOAA-COP was released this spring. In order to facilitate the preparation of multi-investigator, interdisciplinary proposals, CoOP held an open workshop in Milwaukee, WI (6/21/96) where potential investigators exchanged ideas on Great Lakes proposal topics. Based on the recommendations of the CoOP Wind driven Shelf Science plan, we have initiated plans for a joint California Current study with the GLOBEC (Global Ocean Ecosystem Dynamics Program).

Last year we began the CoOP Newsletter. Published 3 times/y with a circulation of approximately 1600, this newsletter provides information on the CoOP program as well as other Federal coastal programs. We recently have established the CoOP Homepage (www.coop.hpel.cees.edu) which contains: descriptions of CoOP projects; planned workshops; announcement of opportunity for proposal submissions; the CoOP Data Policy; list of CoOP publications; and list of the CoOP SSC.

CoOP Publications

Brink, K.H., J.M. Bane, T.M. Church, C.W. Fairall, G.L. Geernaert, D.S. Gorsline, R.T. Guza, D.E. Hammond, G.A. Knauer, C.S. Martens, J.D. Milliman, C.A. Nittrouer, C.H. Peterson, D. Rogers, M.R. Roman and J.A. Yoder. 1990. *Coastal Ocean Processes (CoOP): Results of an Interdisciplinary Workshop*. Contribution # 7584 from the Woods Hole Oceanographic Institution, Woods Hole, Mass; 51 pp.

Brink, K.H., J. Bane, T. Church, C. Fairall, G. Geernaert, D. Gorsline, R. Guza, D. Hammond, G. Knauer, C. Martens, J. Milliman, C. Nittrouer, C.H. Peterson, D. Rogers, M. Roman and J. Yoder. 1991. Interdisciplinary Coastal Ocean Research is Goal of New Program. *Eos* 72: 153-158

Brink, K.H., J.M. Bane, T.M. Church, C.W. Fairall, G.L. Geernaert, D.E. Hammond, S.M. Henrichs, C.S. Martens, C.A. Nittrouer, D.P. Rogers, M.R. Roman, J.D. Roughgarden, R.L. Smith, L.D. Wright and J.A. Yoder. 1992. *Coastal Ocean Processes: A Science Prospectus*. Woods Hole Oceanographic Institution Technical Report, WHOI-92-18, 88 pp.

Klump, J.V., K.W. Bedford, M.A. Donelan, B.J. Eadie, G.L. Fahnenstiel and M.R. Roman. 1995. *Coastal Ocean Process (CoOP): Cross-Margin Transport in the Great Lakes.* University of Maryland Technical Report, UMD-TS-148, 133 pp.

Smith, R.L. and K.H. Brink. 1994. *Wind-Driven Transport Processes on the U.S. West Coast Shelf: A CoOP Workshop.* Woods Hole Oceanographic Institution Report, WHOI-94-20, 134 pp.

Vincent, C, K. Brink and T. Royer. 1993. *Long Time Series Measurements in the Coastal Ocean: A CoOP Workshop.* Woods Hole Oceanographic Institution Report, WHOI-93-49, 96 pp.

INTRODUCTION

Coastal Ocean Processes (CoOP) is a program to promote, organize and expedite multi-investigator, interdisciplinary research in the coastal ocean. We define the coastal ocean as extending from the surf zone to the edge of the continental rise, an area generally ranging from 100 to 1000 km wide and including large inland bodies of water (the Great Lakes) that exhibit similar processes. The coastal ocean provides a buffer between the land and the deep ocean. It is dynamically distinct and often isolated from the rest of the ocean. The coastal ocean has a number of unique physical and meteorological processes that promote high biological production, active sedimentary processes, dynamic chemical transformations and intense air-sea interactions.

The rationale and scientific basis for the CoOP program are described in the CoOP science prospectus (Brink et al. 1992). The goal of CoOP is:

to obtain a new level of quantitative understanding of the processes that dominate the transports, transformations and fates of biologically, chemically and geologically important matter on the continental margins.

Understanding cross-margin transport is central to achieving this goal. Our underlying scientific planning assumption is that a series of well-designed and well-chosen process studies will provide sufficient information to advance our modeling capability to be applicable to continental margins throughout the world. Coupled process studies and modeling are the core of the CoOP program. CoOP activities will also include exploratory studies where data measurement techniques and basic flux or hydrographic data are lacking (i.e. air-sea chemical flux). We also view communications as a integral part of CoOP. This includes communications with the ocean science community (both inside and outside the United States); with other NSF research initiatives (i.e. JGOFS, GLOBEC, LMER); and, with other Federal agencies. While initial support of CoOP has come from NSF, both NOAA and ONR have contributed to the

costs of CoOP management and planning. We view CoOP as a broad-based U.S. program in coastal oceanography.

Planning and oversight of the CoOP program is conducted under the Scientific Steering Committee (SSC). This committee (N=16) is comprised of three representatives each from the disciplines: biological oceanography, chemical oceanography, geological oceanography, marine meteorology and physical oceanography in addition to the Chair of the SSC. Members serve three year terms on the SSC. We generally hold three SSC meetings per year.

Conducting a thorough suite of measurements and model formulation for every coastal region, or even every U.S. coast is beyond the scope of the CoOP program. As described in *Coastal Ocean Processes: A Science Perspective* (Brink et al. 1992), we assume that there is a set of dominant processes that can be found in different mixtures in different locations. Thus the CoOP approach is to quantify key processes in a few areas well enough to model them effectively in a variety of regions. For example, CoOP process studies would be conducted in coastal regions where cross-margin transport is dominated by different physical mechanisms: wind-driven, buoyancy driven, tidally dominated, western boundary current interactions. Synthesis of these results will allow us to generalize CoOP research to a variety of shelf environments.

CoOP Projects

CoOP projects include a study on larval and sediment cross-shelf transport off Duck, NC and air-sea chemical flux off Monterey, CA. The Duck project finished its initial 3 year study period and now has received additional funds to support synthesis of the biological, physical and geological results. The air-sea gas exchange projects conducted their field program in 1995 in coordination with the ONR-sponsored Marine Boundary Layer Research Initiative. CoOP investigators studied the air-sea exchange of carbon dioxide, dimethlsulfide, oxygen and noble gases.